ENVIRONMENTAL Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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Water Efficiency Practices for Institutions

Schools, colleges, universities and other institutions that provide room and board can realize significant water and cost savings by implementing the water efficiency practices in this fact sheet. These practices address water use in living areas, classrooms, cafeterias, laundries and outdoors. A comprehensive audit should be performed to assess the facility's water system and identify locations where these practices can be employed to conserve water. See fact sheet, ***Performing a Business or Industry Water Use and Conservation Audit,*** for directions.

General Water Efficiency Practices

- Locate and repair leaks. Metering at strategic points in the facility helps detect leaks and maintain minimum flow rates
- Develop a maintenance program. Routinely inspect all plumbing and fixtures, equipment, water lines, irrigation systems, valves and pumps for leaks, clogging, worn out gaskets, and faulty operation. Keep replacement and repair parts on hand.
- Educate residents about water efficiency practices.

Domestic/Sanitary Water Efficiency Practices

- Install ultra low flow toilets (ULF) that use a maximum of 1.6 gal/flush (6.0L/flush) or retrofit existing toilets with displacement bottles or dams. Install ULF urinals that use a maximum of 1.0 gal/flush (3.9L/flush).
- Install low flow faucet aerators or laminar flow restrictors that limit flow to <2.5gpm.
- Install low flow showerhead devices that limit flow to <2.5gpm.
- Install flow restrictors on plumbing fixtures wherever possible.
- Install automatic faucet shut off valves in public water use areas.
- Eliminate automatic/continuous water flushing systems in urinals and toilets.
- Replace older model piped-in drinking water fountains with stand-alone water coolers/dispensers.
- Replace top-loading vertical axis washing machines with front-loading horizontal axis types.
- If a commercial type laundry exists onsite, consider using tunnel or similar washers that recycle the final rinse water into the next wash cycle. See ***Water Efficiency Practices for Laundries.***

Kitchen/Cafeteria Water Efficiency Practices

- Minimize or eliminate pre-wash spray systems and replace spray heads with low flow models.

- Install automatic shut off valves in all water using kitchen equipment or shut off water when not in use.
- Remove garbage disposals. Replace them with strainers, or reuse wash and rinse water for disposal purposes. Composting food waste is the most practical disposal method for water conservation and nutrient recycling.
- Replace water-cooled ice machines with air-cooled models or retrofit to recirculating non-contact cooling.
- Use flake ice machines. These require less bleed-off than cube ice machines.
- Reuse non-contact cooling water for other purposes.
- Upgrade to water-saving machinery as old equipment wears out.
- Install on-demand point-of-use water heating systems to eliminate the need to purge lines for hot water. Insulate pipes to retain heat.
- Operate dishwashers, sanitizers, and sterilizers with full loads only and shut them off when not in use. Install sensors on conveyor systems that automatically shut off water when no dishes are present.
- Utilize high temperature rinse dishwashers rather than low temperature ones as they require less water and wash more racks per hour.
- Consider using ultrasonic pre-rinse units or hand scrape dishwater rather than rinsing with water.
- Pre-rinse utensils and dishes in a water basin.
- Rinse vegetables in a water basin.
- Reuse rinse water where appropriate for pre-rinsing, dish washing, garbage disposers, or scrapping troughs.
- Operate scrapping troughs only when washing dishware.
- Eliminate scrapping troughs or minimize the water flowing through them.
- Do not use running water to melt ice or frozen foods.
- Provide self-serve water dispensers and eliminate serving water with meals except upon request.

Outdoor Water Efficiency Practices

See fact sheet, ***Water Efficiency Practices for Outdoor Water Use,*** for additional ways to save water outdoors.

- Cover outdoor swimming pools when not in use to prevent evaporative losses.
- Wash fleet vehicles less often.
- Sweep parking lots, driveways, walks and steps rather than hosing them off.
- Watering frequency should be based on soil moisture, weekly precipitation and plant/turf conditions. Typically, established landscape plants and turf grass require an inch of water per week, and this amount may be applied in one application.
- Employ an automatic timer on outdoor irrigation systems.
- Be sure sprinkler heads are producing drops rather than a mist. This helps reduce evaporative losses.
- Incorporate soil moisture and rain sensors into automatic sprinkler systems.
- Operate automatic sprinkler systems connected to public water systems only when the water demand is low, usually between 4-6 a.m.
- Don't water the pavement. Adjust sprinklers so that they water just the plants.
- Plant drought-resistant turf grass. The most drought-tolerant grasses are the fine leaf fescues. The University of New Hampshire Cooperative Extension recommends a mix containing hard fescue, Chewings fescue and perennial ryegrass.
- Soil moisture sensors are useful in determining how wet your soil is. You can check the moisture of the soil to determine watering needs. In some instances you will find that

you do not need to water even if it has not rained recently. Water should be applied until the soil moisture meets the Cooperative Extension's recommendations for your soil type.

- Check soil moisture before watering, even if it hasn't rained. Then spot water, irrigating only those areas that are dry. Water by hand, if possible.
- Do not irrigate during windy conditions.
- Use hose nozzle shutoff devices
- Utilize drip or trickle irrigation wherever possible. These systems apply water near the root zone of the plant, ensuring a complete watering while eliminating excess water usage.
- Minimize your lawn area. Replace grass with moss, rocks, gravel, wood chips or mulched flowerbeds. Consider xeriscaping or Zen gardens. Xeriscaping effectively utilizes drought tolerant vegetation that subsists on precipitation alone. Zen gardens traditionally contain no vegetation whatsoever, usually only raked sand, sculpture and a water feature. See fact sheet, ***Fundamentals of Xeriscaping and Water Wise Landscaping,*** for more information.
- Plant species native to New Hampshire. Native plants are hardier and tend to need less water. Check out the New England Wildflower Society's website for a complete listing of native plants they offer for sale, www.newfs.org/availp2.htm. Or contact the New Hampshire Chapter of the Society at (603) 964-1982 for advice on native plantings.
- Use mulch wherever possible.

For Additional Information

Contact Water Supply Engineering Bureau at 603-271-2513 or visit our website at **www.des.state.nh.us/ws.htm**

UNH Cooperative Extension, Fact sheets on cultural requirements for turf and choosing varieties of turf grass.
http://www.ceinfo.unh.edu/Agric/AGNLT.htm

References:
_____,*MRI Water Conservation Technical Bulletin #5, Water Conservation Best Management Practices for Domestic/Sanitary Water Use;* New England Interstate Water Pollution Control Commission, Wilmington, MA; 1996.

_____,*MRI Water Conservation Technical Bulletin #6, Water Conservation Best Management Practices for Kitchen Water Use;* New England Interstate Water Pollution Control Commission, Wilmington, MA; 1996.

_____; *MIL-Handbook-1165, Water Conservation;* US Dept. of Defense; 1997; pp 25-37.
Vickers, Amy; *Handbook of Water Use and Conservation;* WaterPlow Press, Amherst, MA; 2001; pp 267-277.